

FIG 1

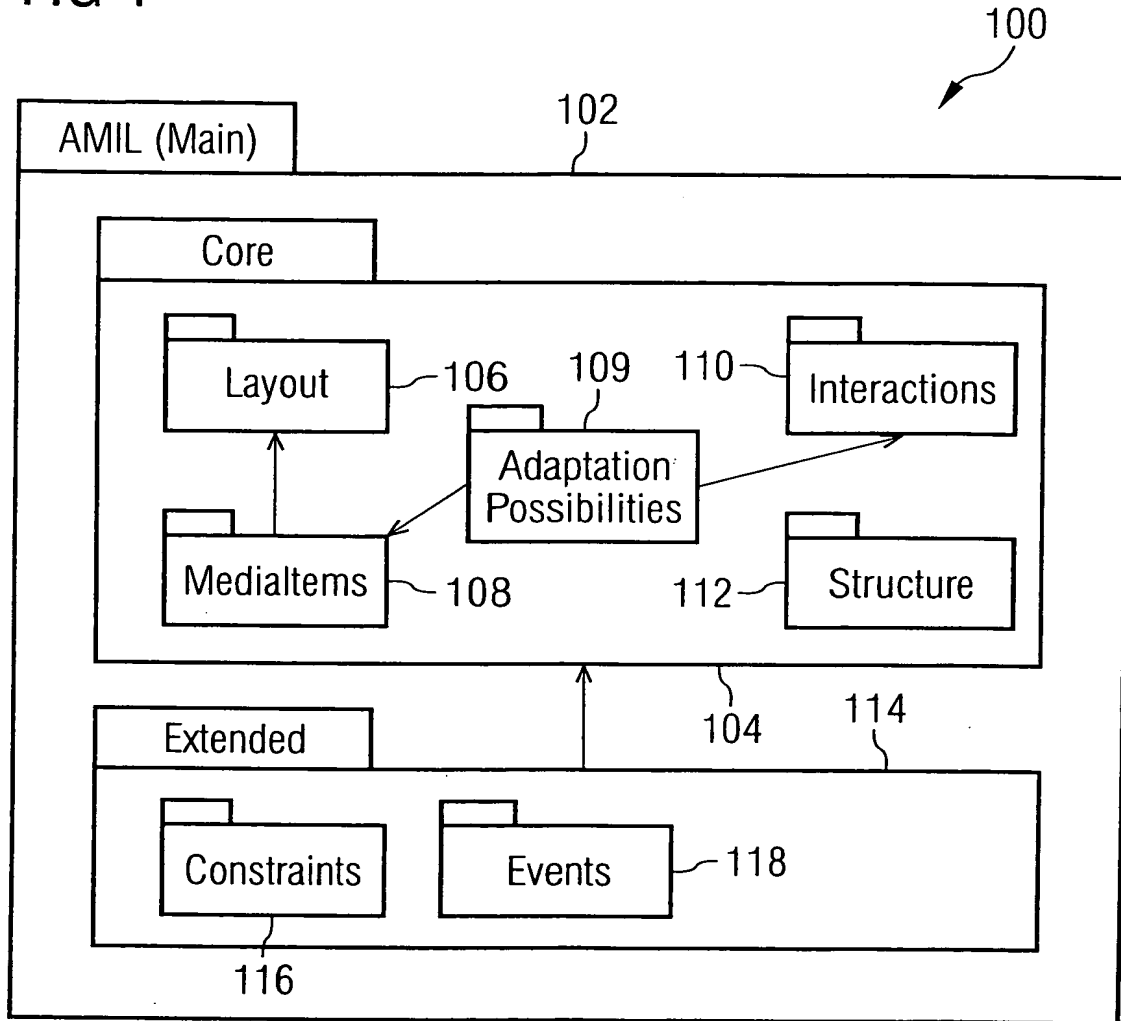


FIG 2

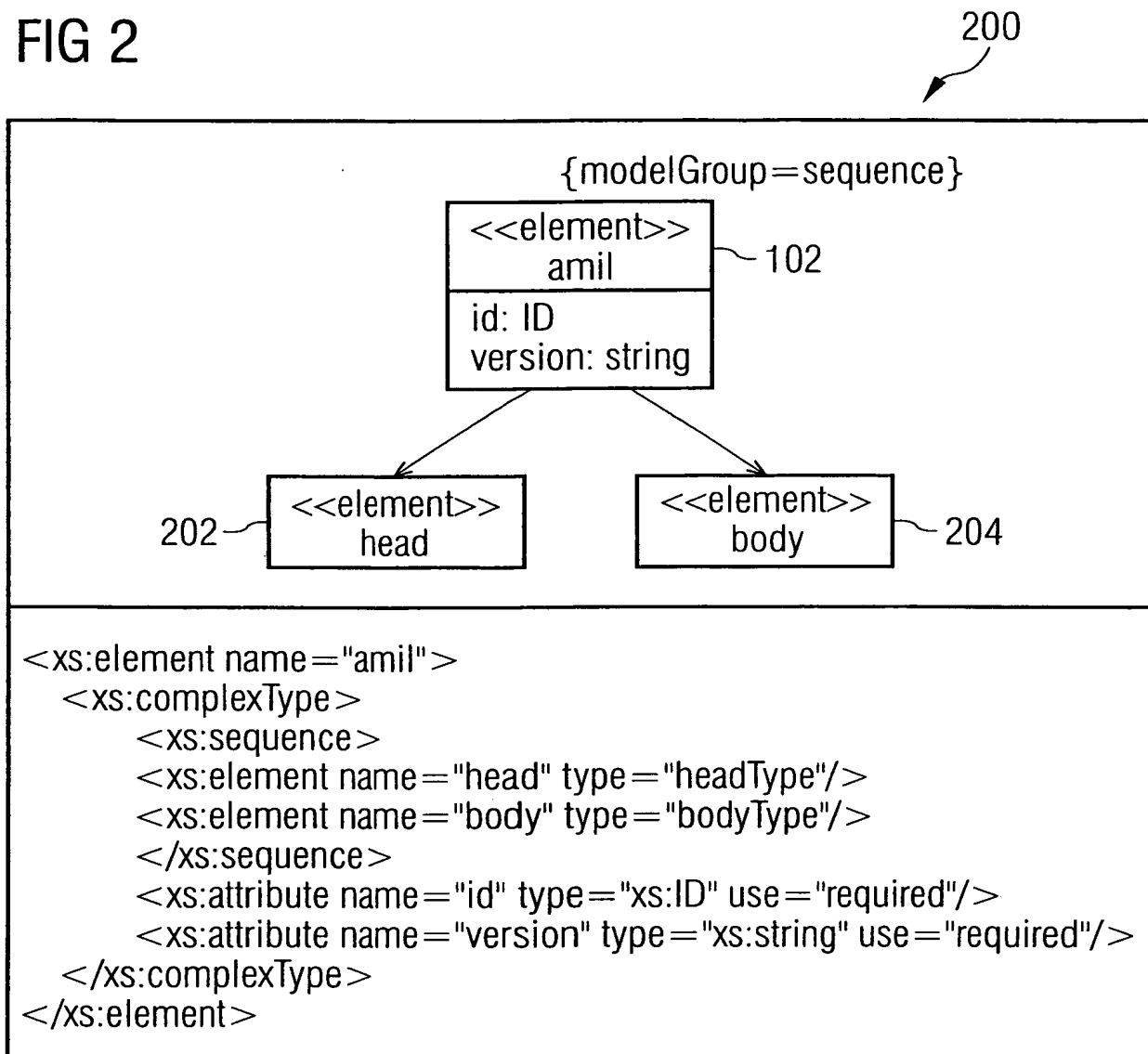


FIG 3 (first part)

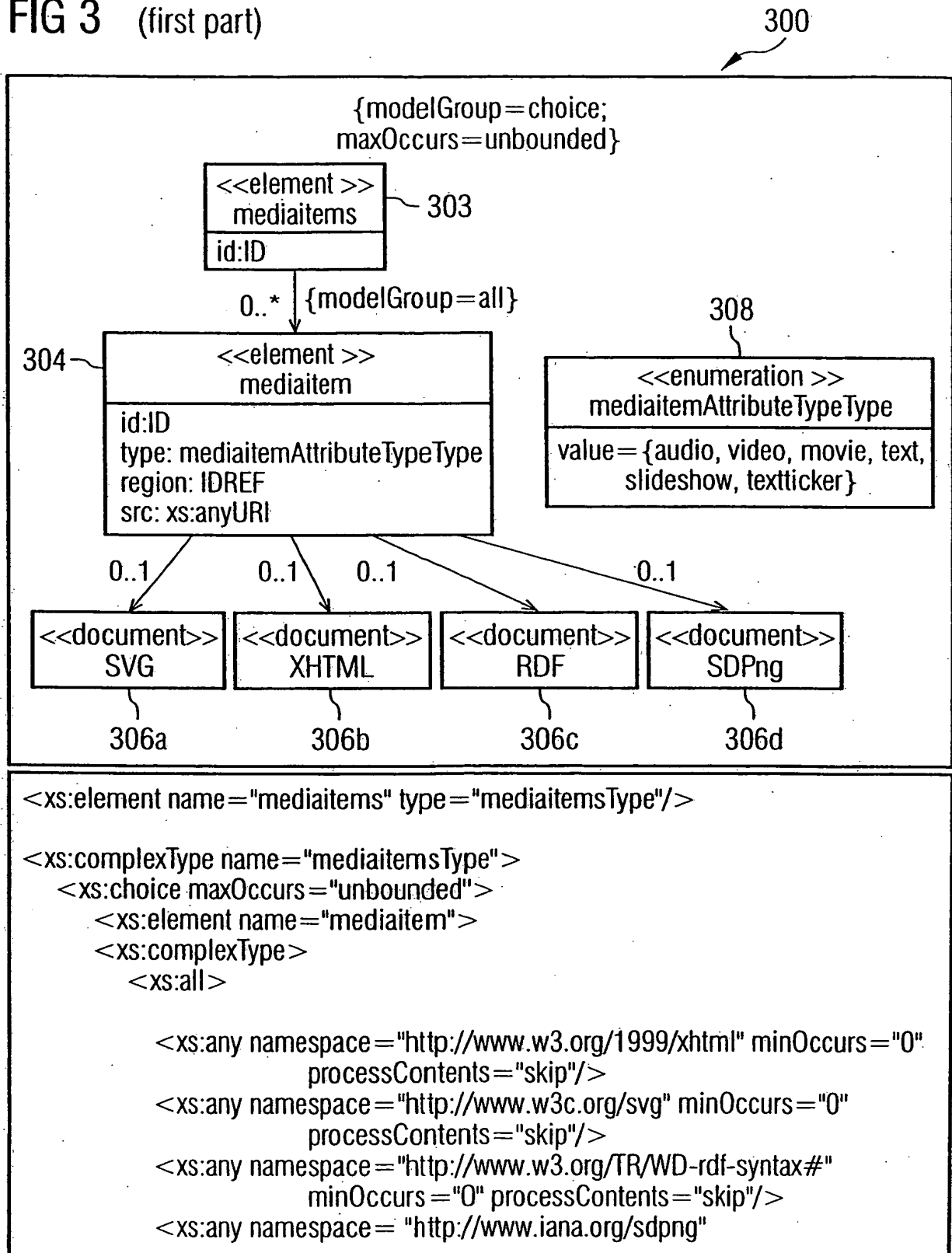


FIG 3 (second part)

```

minOccurs="0"

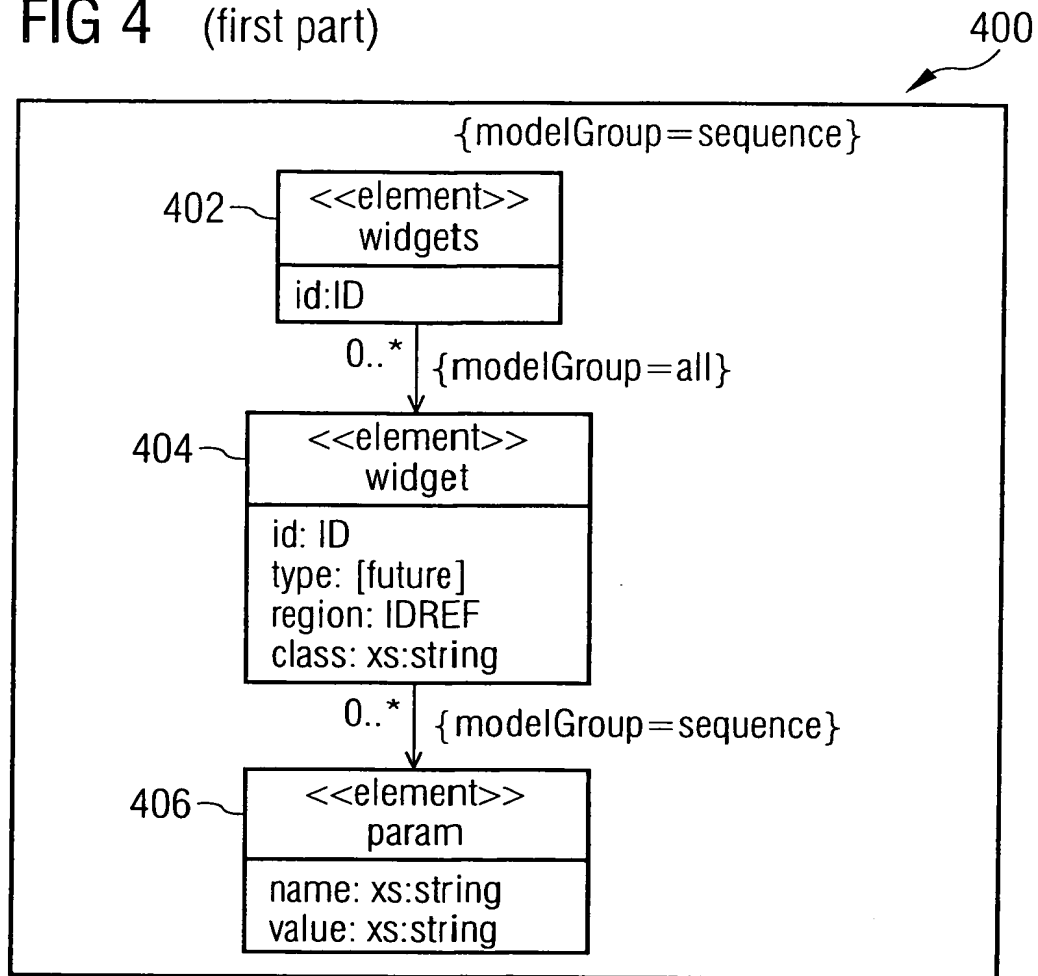
        processContents="skip"/>

        <!--
            further VoxML and other
            Presentation Markup Languages
        -->
    </xs:all>
    <xs:attribute name="id" type="xs:ID" use="required"/>
    <xs:attribute name="type"
        type="mediaitemAttributeTypeType"
    use="required"/>
    <xs:attribute name="region" type="xs:IDREF"
    use="required"/>
    <xs:attribute name="src" type="xs:anyURI"/>
</xs:complexType>
</xs:element>
</xs:choice>
</xs:complexType>

<xs:simpleType name="mediaitemAttributeTypeType">
    <xs:restriction base="xs:string">
        <xs:enumeration value="audio"/>
        <xs:enumeration value="video"/>
        <xs:enumeration value="image"/>
        <xs:enumeration value="text"/>
        <xs:enumeration value="slideshow"/>
        <xs:enumeration value="textticker"/>
    </xs:restriction>
</xs:simpleType>

```

FIG 4 (first part)



```

<xs:element name="interactions"
type="interactionsType"/>

<xs:element name="widget" type="interactionType"/>

<xs:complexType name="interactionsType">
  <xs:choice maxOccurs="unbounded">
    <xs:element name="widget">
      <xs:complexType>
        <xs:sequence>
          <xs:element name="param"
maxOccurs="unbounded">
            <xs:complexType>
              <xs:complexContent>
                <xs:restriction base="xs:anyType">
                  <xs:attribute name="name"
type="xs:string"/>
                  <xs:attribute name="value"
  
```

FIG 4 (second part)

```
type="xs:anyURI"/>
    </xs:restriction>
    </xs:complexContent>
  </xs:complexType>
</xs:element>
</xs:sequence>
<xs:attribute name="id" type="xs:ID"
use="required"/>
  <xs:attribute name="type" type="xs:string"
    use="required"/>
  <xs:attribute name="region" type="xs:IDREF"
    use="required"/>
  <xs:attribute name="class" type="xs:string"
    use="required"/>
  <xs:attribute name="src" type="xs:anyURI"
    use="required"/>
</xs:complexType>
</xs:element>
</xs:choice>
</xs:complexType>
```

FIG 5

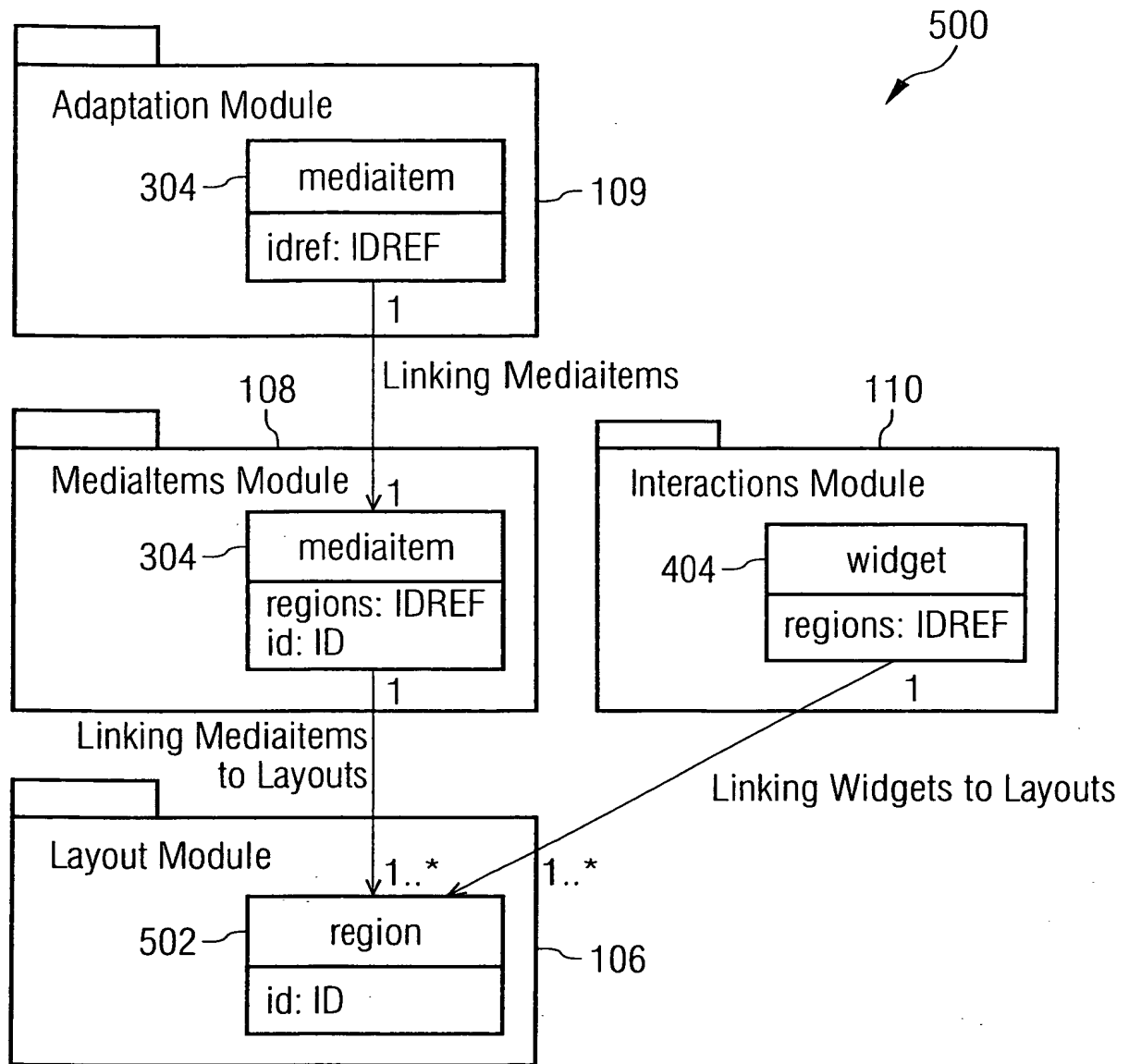


FIG 6

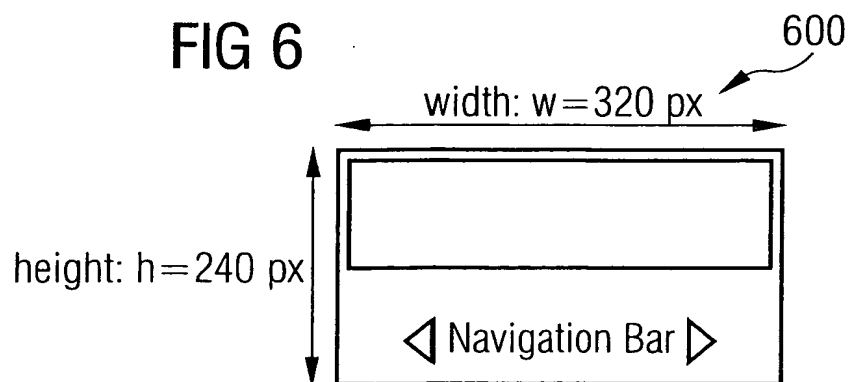


FIG 7

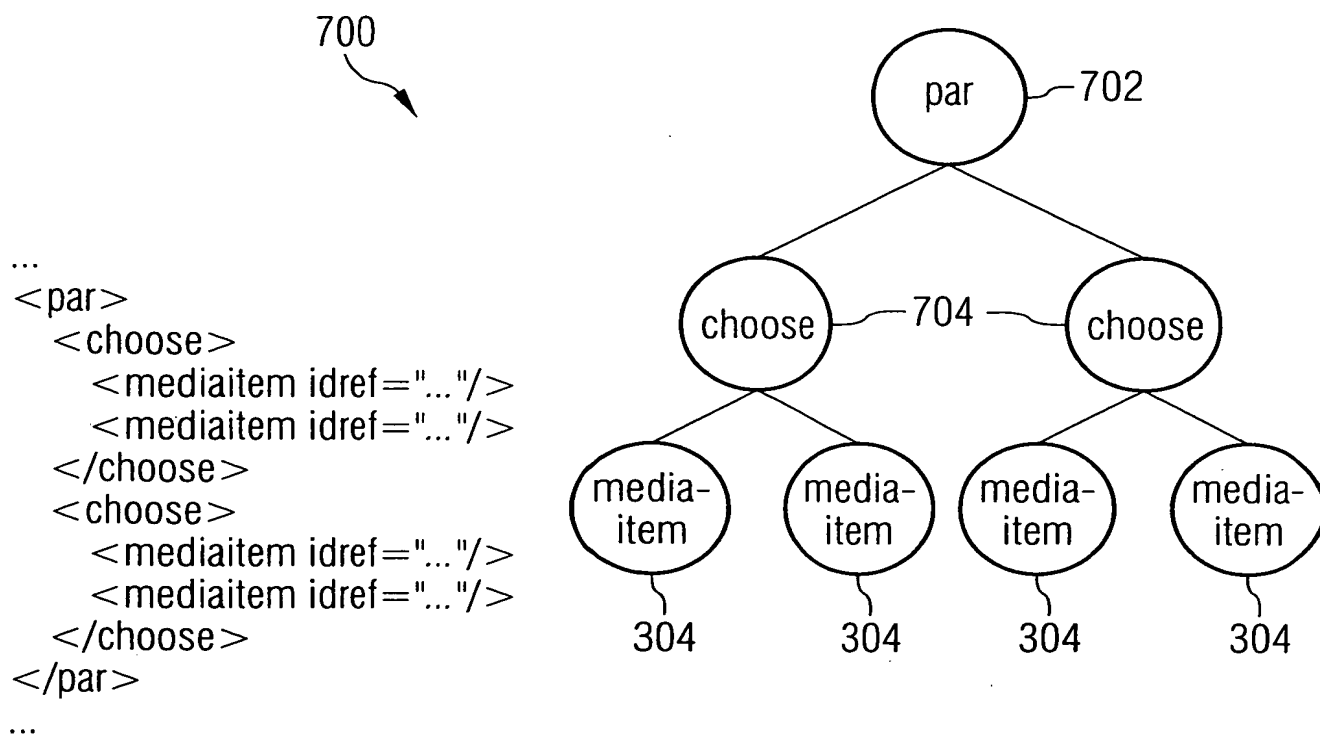
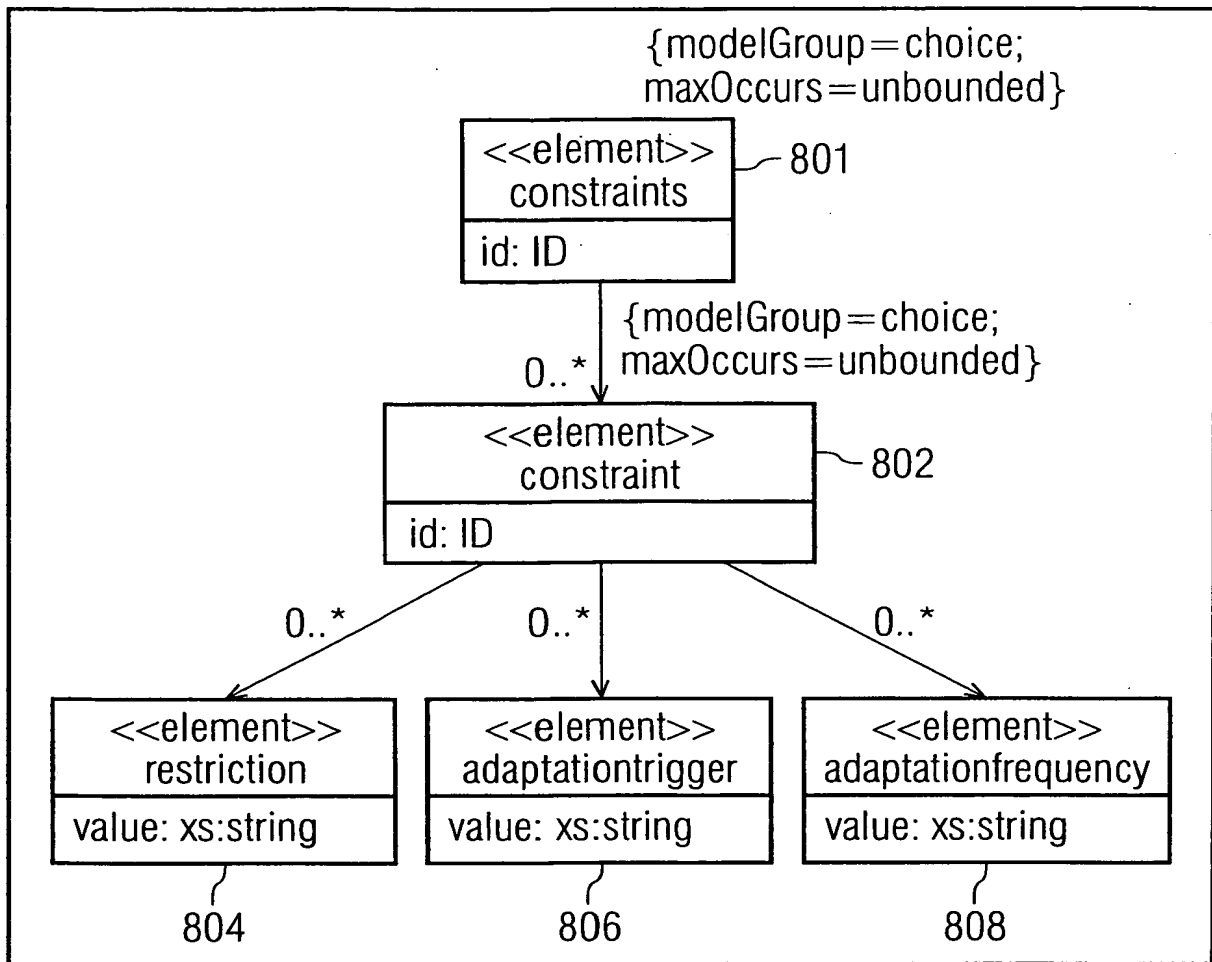


FIG 8 (first part)

800



```
<xs:element name="constraints" type="constraintsType"/>
```

```
<xs:complexType name="constraintsType">
```

```
  <xs:choice maxOccurs="unbounded">
```

```
    <xs:element name="constraint">
```

```
      <xs:complexType>
```

```
        <xs:choice maxOccurs="unbounded">
```

```
          <xs:element name="restriction">
```

```
            <xs:complexType>
```

```
              <xs:complexContent>
```

```
                <xs:restriction base="xs:anyType">
```

```
                  <xs:attribute name="value"
```

```
                    type="xs:string"/>
```

```
                </xs:restriction>
```

```
              </xs:complexContent>
```

FIG 8 (second part)

```
</xs:complexType>
  </xs:element>
  <xs:element name="adaptationtrigger">

<xs:complexType>
  <xs:complexContent>
    <xs:restriction base="xs:anyType">
      <xs:attribute name="value"
type="xs:string"/>
    </xs:restriction>
  </xs:complexContent>
</xs:complexType>
</xs:element>
<xs:element name="adaptationfrequency">
  <xs:complexType>
    <xs:complexContent>
      <xs:restriction base="xs:anyType">
        <xs:attribute name="value"
type="xs:string"/>
      </xs:restriction>
    </xs:complexContent>
  </xs:complexType>
</xs:element>
</xs:choice>
</xs:complexType>
</xs:choice>
</xs:complexType>
```

FIG 9

900

Adaptation Possibilities	Property, e.g. Bandwidth
showing m1 and m3	109,000 Bit/s
showing m1 and m4	89,000 Bit/s
showing m2 and m3	77,000 Bit/s
showing m2 and m4	23,000 Bit/s

FIG 10

1000

Name of the association	Relevant modules
"Linking Mediaitems"	Adaptation Module and Mediaitems Module
"Linking Mediaitems to Layout"	Adaptation Module and Layout Module
"Linking Widgets to Layout"	Interactions Module and Layout Module

FIG 11 (first part)

Name	Description	Value range	Units	applies to
framerate	Restricts the frame rate to use for mediaitems of type "video".	positive integer	frames/s	mediaitem
samplingrate	Restricts the sampling rate for mediaitems of type "audio".	positive integer		mediaitem
bitsperpixel	Restricts the color depths for mediaitems of type "video" or "image".	positive integer		mediaitem
quality	Restricts the media quality to use. This setting can be interpreted differently depending on the used codec for the media item.	float between 0 and 1		mediaitem
bitrate	Restricts the bit rate to use.	positive integer	kBit/s MBit/s	all
bitratetoADDRESS	Restricts the bit rate for a specific target host. ADDRESS can be an IP address or a hostname.	positive integer	kBit/s MBit/s	all
memory	Limits the amount of memory to use.	positive integer	Bit kBit	all

FIG 11 (second part)

Name	Description	Value range	Units	applies to
cpu	Restricts the amount of processing power to use. Either specified in the load percentage or an normalized processing power value.	positive integer	%	all
audioquantity	Restricts the number of media items of type audio.	positive integer		all except mediaitem
videoquantity	Restricts the number of media items of type video.	positive integer		all except mediaitem
textquantity	Restricts the number of media items of type text.	positive integer		all except mediaitem
imagequantity	Restricts the number of media items of type image.	positive integer		all except mediaitem
discretequantity	Restricts the number of discrete media items.	positive integer		all except mediaitem
contquantity	Restricts the number of continuous media items.	positive integer		all except mediaitem

FIG 12

Name	Description	Value range	Units
framerate	Specifies framerate limits for media item of type "video".	positive integer	frames/s
bitrate	Specifies bitrate limits.	positive integer	
plr	Specifies limits for the packet loss rate.	positive integer	%
delay	Specifies limits for the delay.	positive integer	ms
jitter	Specifies limits for the jitter.	positive integer	%

FIG 13

1300

```

<par>
  <choose priority="1">
    <mediaitem idref="M1"

priority="3"/>
    <mediaitem idref="M2"

priority="4"/>
    </choose>
    <choose>
      <mediaitem idref="M3"

priority="5"/>
      <mediaitem idref="M4"

priority="6"/>
      </choose>
    </choose>
  </par>

```

FIG 14

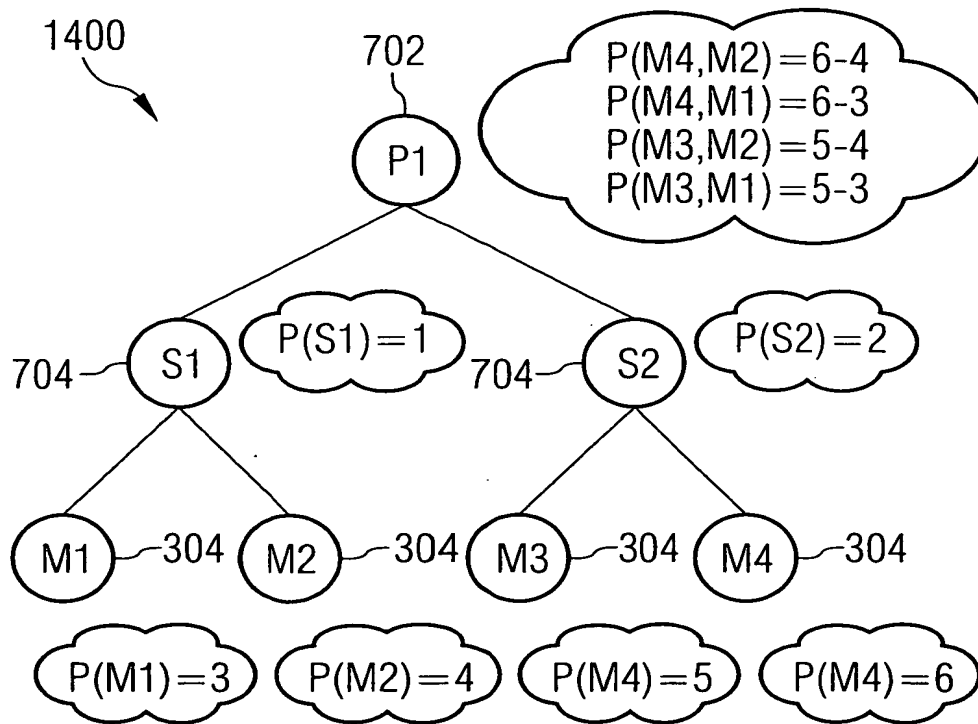


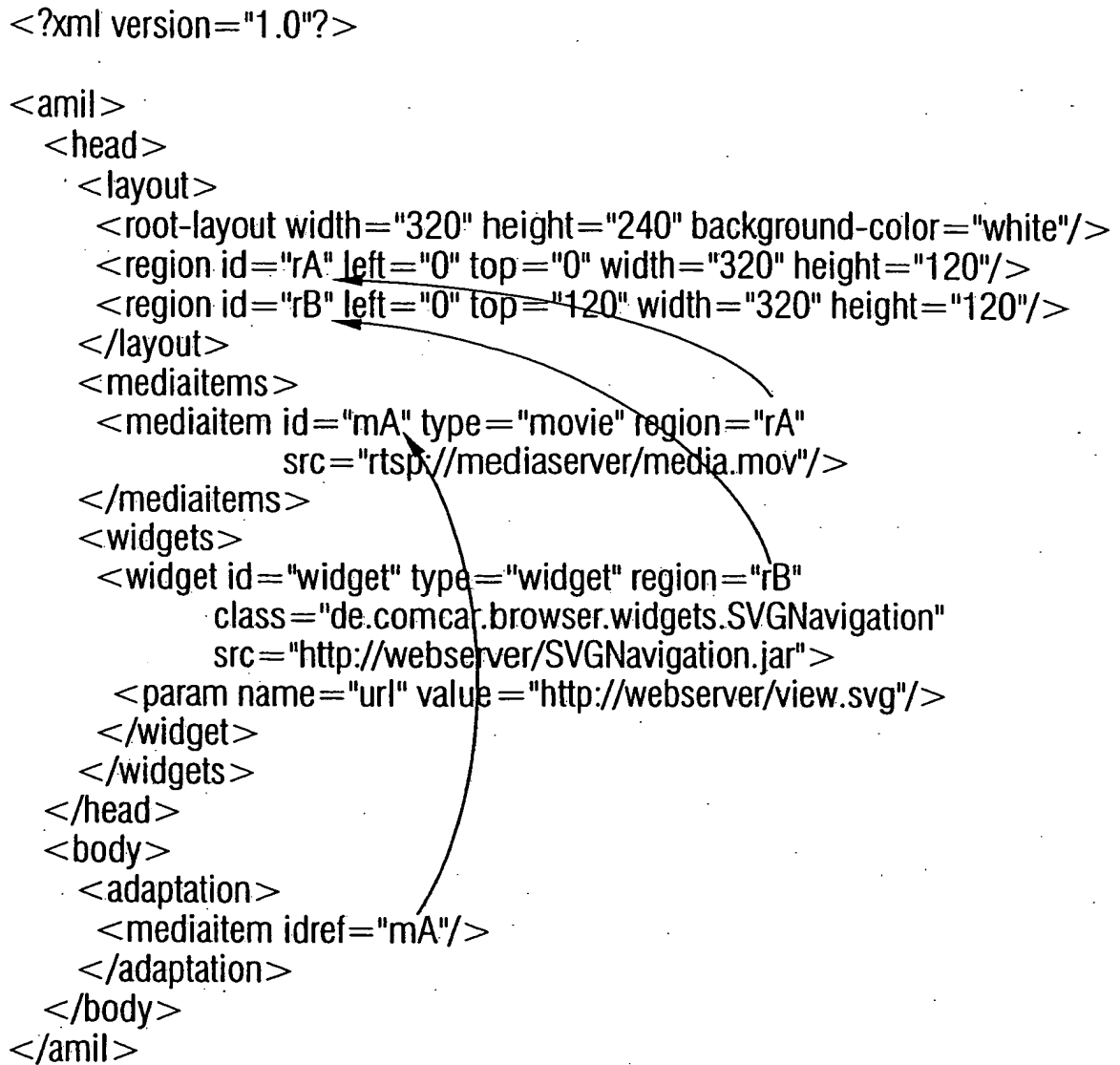
FIG 15

1500

AP 1: M4, M2 with priority 6-4
 AP 2: M4, M1 with priority 6-3
 AP 3: M3, M2 with priority 5-4
 AP 4: M3, M1 with priority 5-3

FIG 16

1600



```

<?xml version="1.0"?>
<amil>
  <head>
    <layout>
      <root-layout width="320" height="240" background-color="white"/>
      <region id="rA" left="0" top="0" width="320" height="120"/>
      <region id="rB" left="0" top="120" width="320" height="120"/>
    </layout>
    <mediaitems>
      <mediaitem id="mA" type="movie" region="rA"
        src="rtsp://mediaserver/media.mov"/>
    </mediaitems>
    <widgets>
      <widget id="widget" type="widget" region="rB"
        class="de.comcar.browser.widgets.SVGNavigation"
        src="http://webserver/SVGNavigation.jar">
        <param name="url" value="http://webserver/view.svg"/>
      </widget>
    </widgets>
  </head>
  <body>
    <adaptation>
      <mediaitem idref="mA"/>
    </adaptation>
  </body>
</amil>

```


FIG 17

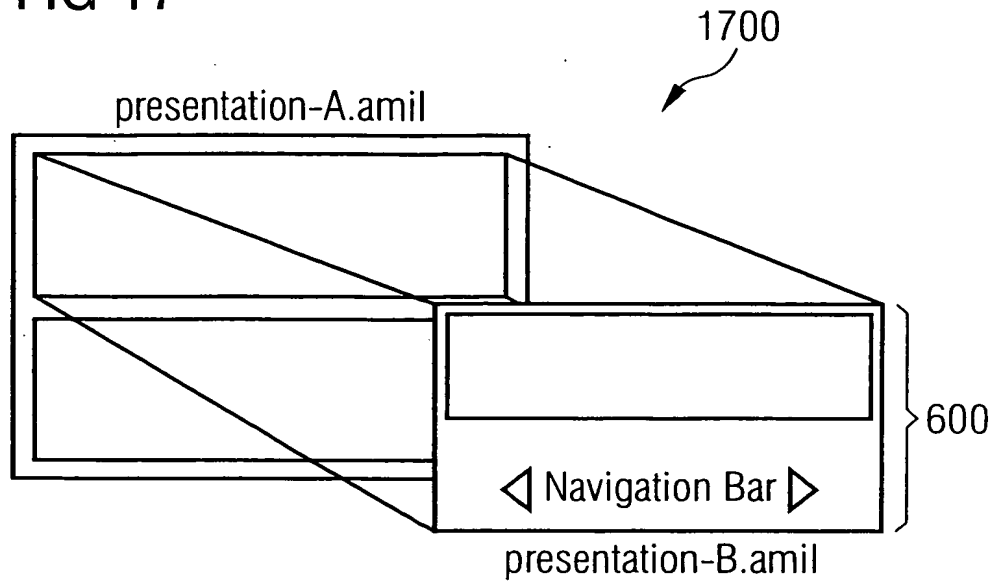


FIG 18

Diagram 1800 shows an XSL-FO test expression. A curved arrow labeled 1800 points to the code block.

```
...  
<xsl:test="diff(currentlocation, location ('47,11','9,34'))<500">  
  <!-- do something -->  
</xsl:test>  
...
```

FIG 19

1900

```
<events xmlns="http://www.sony.de/amil"
  xmlns:xsl="http://www.w3.org/1999/XSL/Format"
  xmlns:ev="http://www.w3.org/2001/xml-events">
  <ev:listener event="location::changeEvent">
    <action type="passToScript">
      <xsl:choose>
        <xsl:when
          <xsl:test="diff(currentlocation, location ("47,11","9,34"))">
            <link>
              <src id="mediaitemA, regionA">
                <target id="mediaitemA, regionB">
              </link>
              <link>
                <element id="mediaitemB, regionB">
                  <region id="mediaitemB, regionC">
                </link>
              </xsl:when>
              <xsl:otherwise>
                <link>
                  <src id="mediaitemA, regionA">
                    <target id="mediaitemA, regionC">
                  </link>
                </xsl:otherwise>
              </xsl:choose>
            </action>
          </ev:listener>
        </events>
```

FIG 20

2000


```
<events xmlns="http://www.sony.de/amil"
xmlns:xsl="http://www.w3.org/1999/XSL/Format"
xmlns:ev="http://www.w3.org/2001/xml-events">
  <ev:listener event="location::changeEvent">
    <action type="passToScript">
      <link>
        <src id="mediaitemA, regionA">
          <target id="mediaitemA, regionC">
            </link>
          </action>
        </ev:listener>
      </events>
```

FIG 21

2100

```
<par>
  <choose>
    <mediaitem idref="m1">
      <mediaitem idref="m2">
    </choose>
    <choose>
      <mediaitem idref="m3">
      <mediaitem idref="m4">
    </choose>
  </par>
```

FIG 22 (first part)

2200


<body>

```
<constraints>
  <constraints id="low">
    <restriction value="bitrate > 100 kBit/s">
    <restriction value="bitrate < 1500 kBit/s or framerate > 30 frames/s">
    <restrictions value="cpu < 40%">
  <constraint>
  <constraint id="mid">
    <restriction value="bitrate < 1000 kBit/s">
    <restriction value="cpu < 30%">
  <constraint>
  <constraint id="high">
    <restriction value="bitrate < 500 kBit/s">
    <restriction value="cpu < 20%">
  <constraint>
  <constraint id="video">
    <adaptationtrigger value="framerate < 15 frames/s">
    <adaptationtrigger value="plr > 0,05">
  <constraint>
</constraints>
```

FIG 22 (second part)

```

<adaptation>
  <choose idref="low">
    <mi id="medialtemA" idref="video"/>
    <mi id="medialtemB"/>
  </choose>
  <choose idref="mid">
    <mi id="medialtemC"/>
    <mi id="medialtemD"/>
  </choose>
  <choose idref="high">
    <mi id="medialtemE"/>
    <mi id="medialtemF"/>
  </choose>
</adaptation>
</body>

```

FIG 23

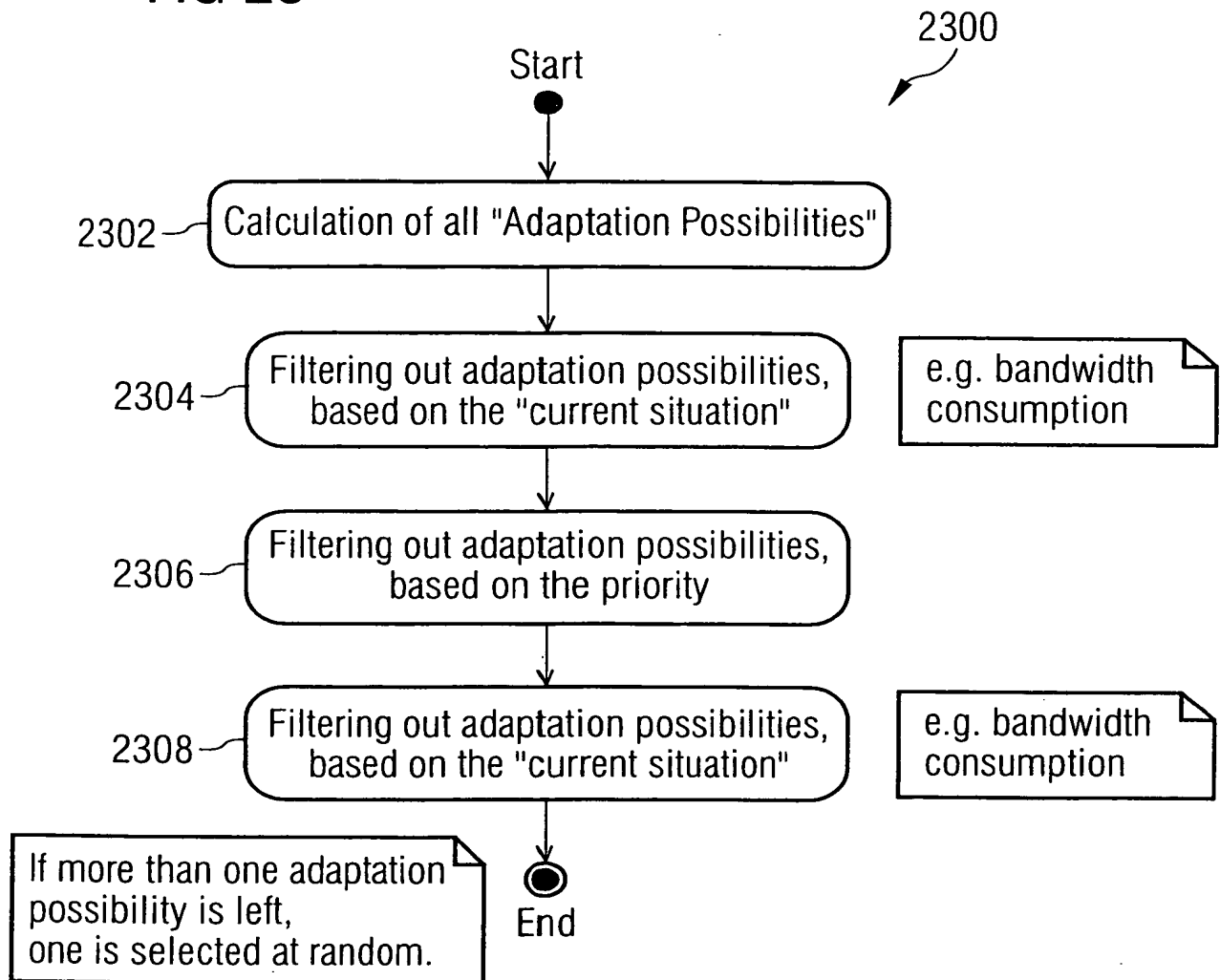


FIG 24

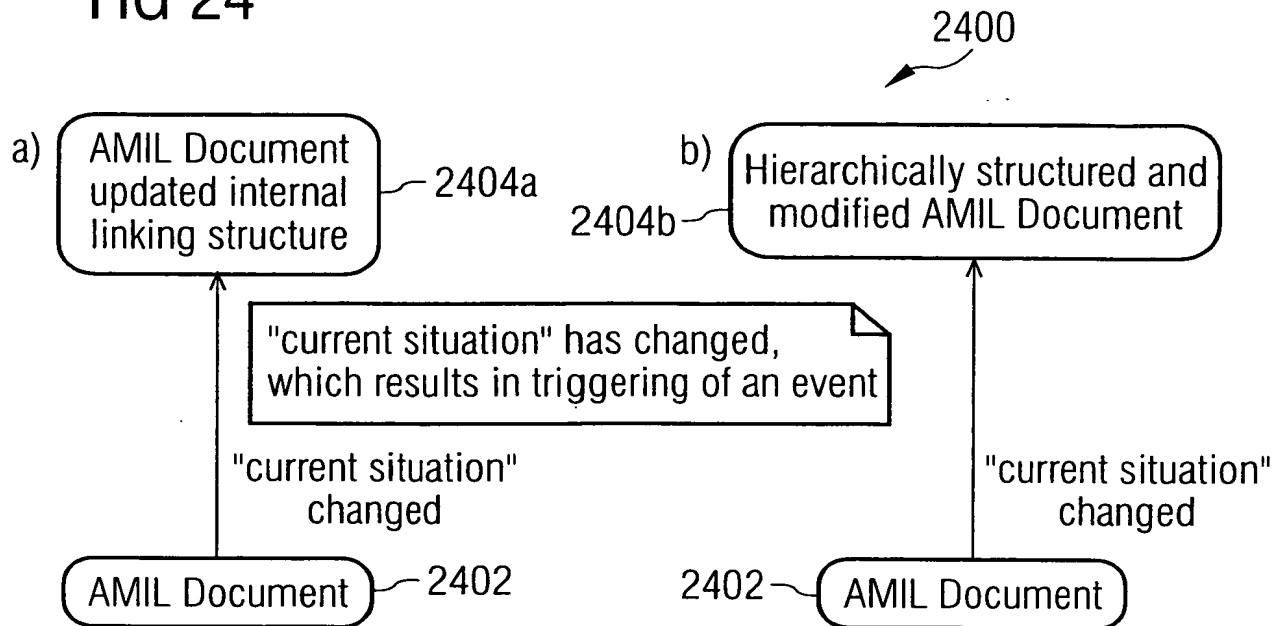


FIG 25

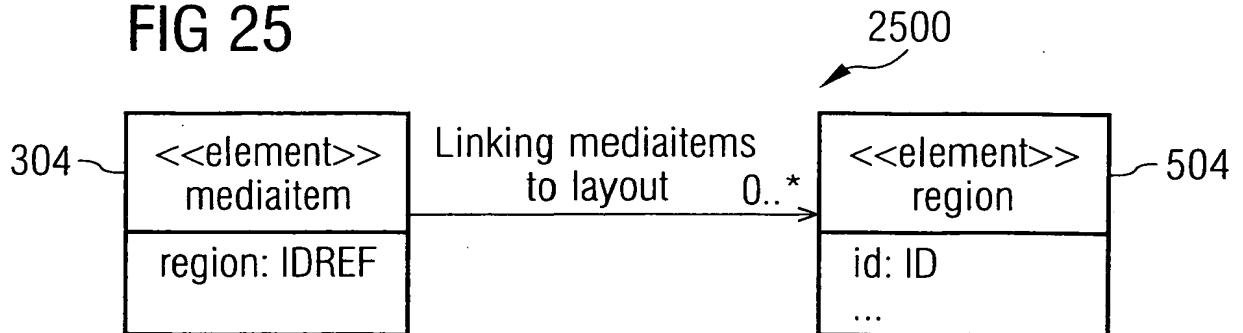


FIG 26

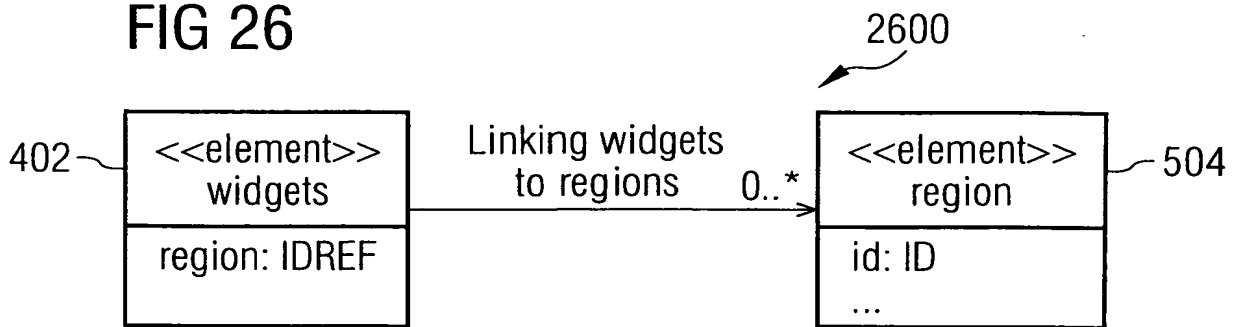
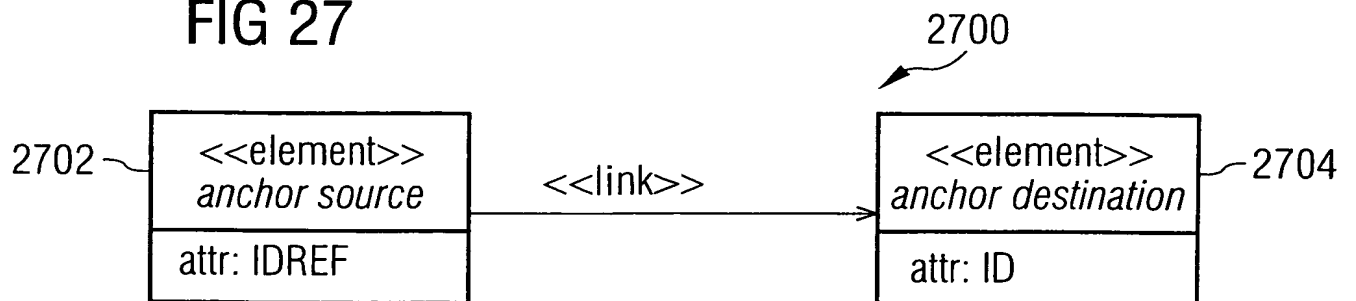


FIG 27



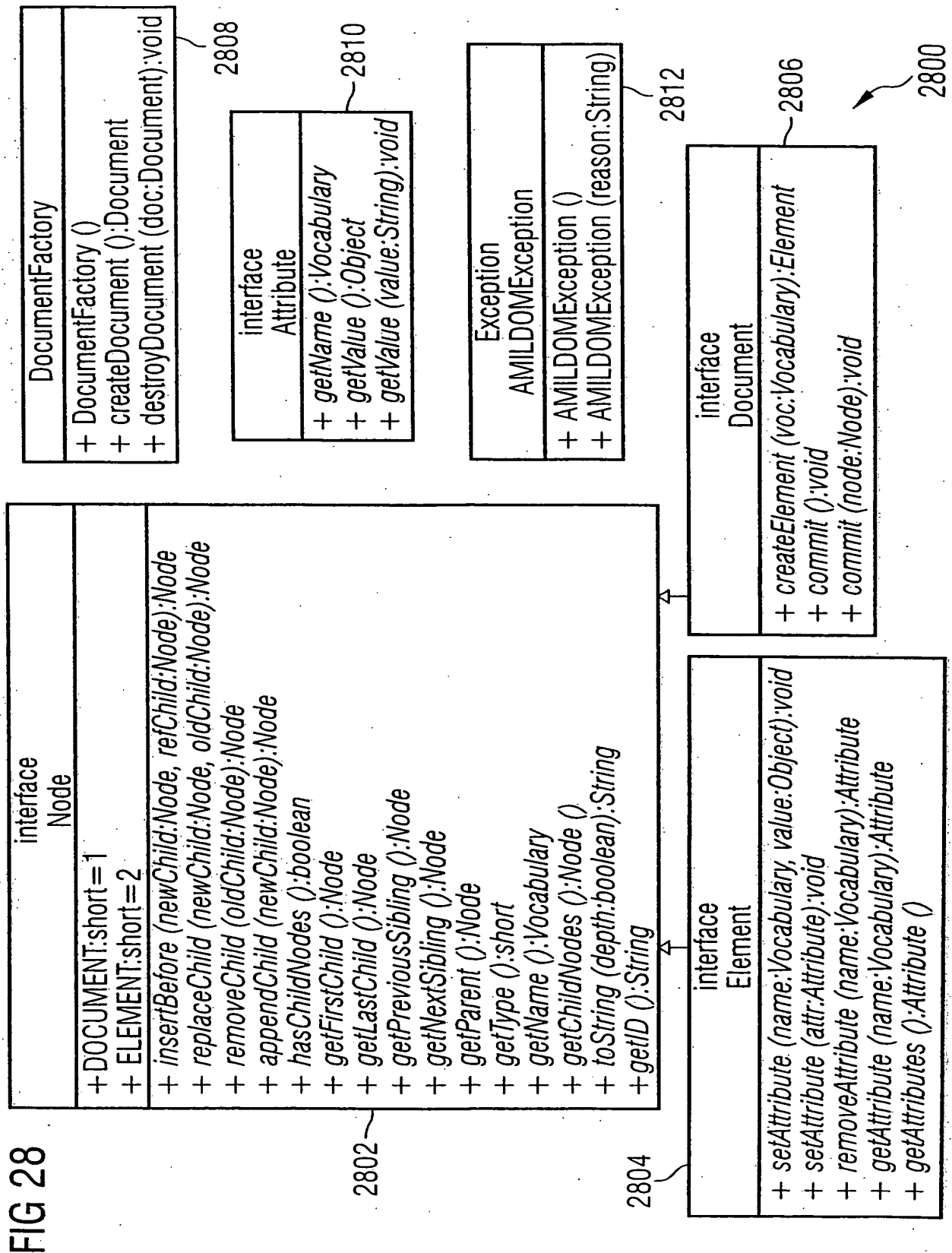


FIG 29 (first part)

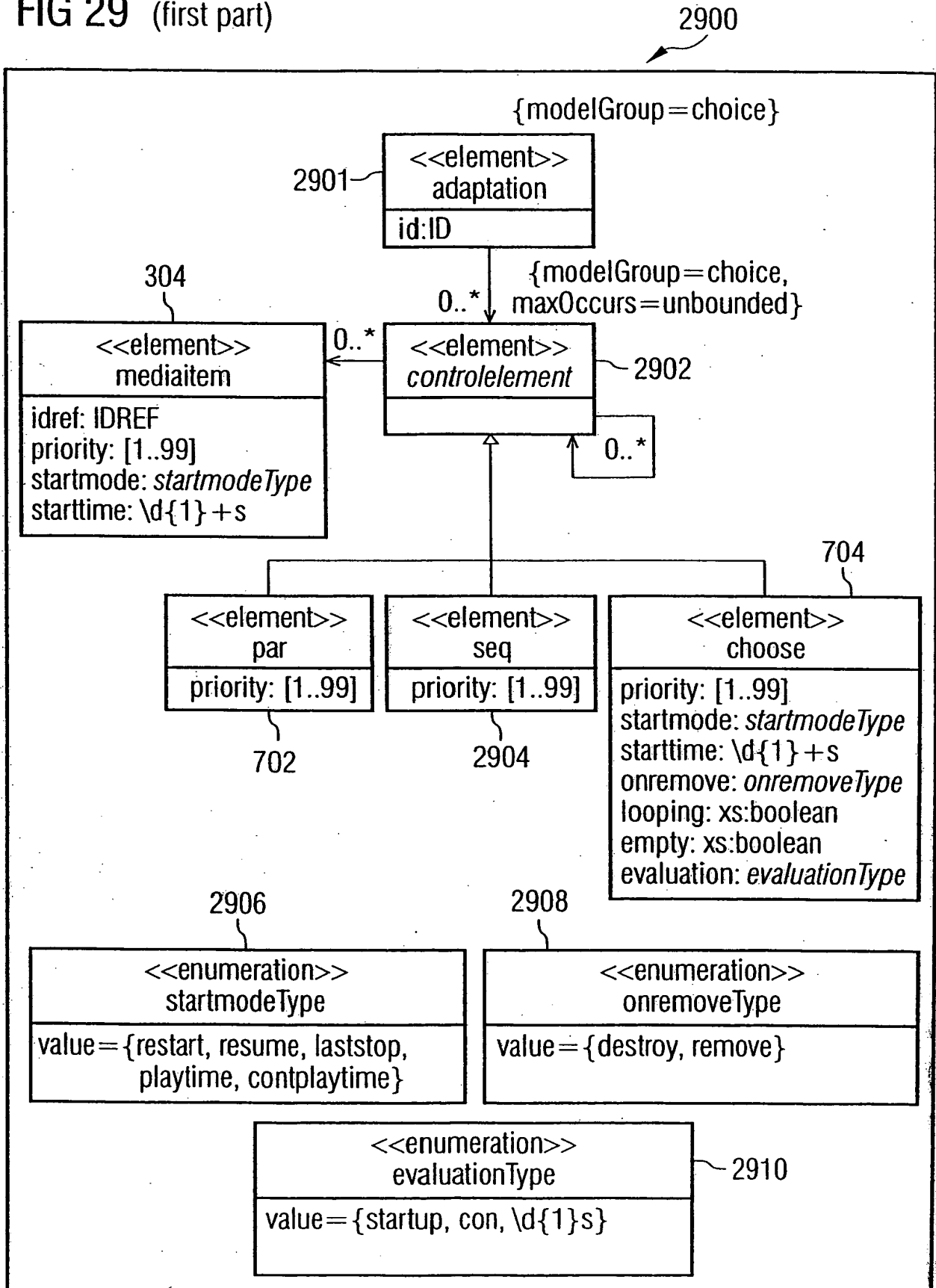


FIG 29 (second part)

```

<xs:element name="adaptation" type="adaptationType">
  <xs:complexType name="adaptationType">
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element name="choose" type="chooseType" />
      <xs:element name="par" type="parType" />
      <xs:element name="seq" type="seqType" />
      <xs:element name="mediaitem" type="mediaitemType" />
    </xs:choice>
    <xs:attribute name="id" type="xs:ID"/>
  </xs:complexType>

  <xs:complexType name="chooseType">
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element name="choose" type="chooseType"/>
      <xs:element name="par" type="parType" />
      <xs:element name="seq" type="seqType" />
      <xs:element name="mediaitem" type="mediaitemType" />
    </xs:choice>
    <xs:attribute name="priority" type="priorityType"/>
    <xs:attribute name="startmode" type="startmodeType"/>
    <xs:attribute name="starttime" type="starttimeType"/>
    <xs:attribute name="onremove" type="onremoveType"/>
    <xs:attribute name="looping" type="loopingType"/>
    <xs:attribute name="evaluation" type="evaluationType"/>
    <xs:attribute name="empty" type="emptyType"/>
  </xs:complexType>

```

FIG 29 (third part)

```
<xs:complexType name="parType">
  <xs:choice minOccurs="0" maxOccurs="unbounded">
    <xs:element name="choose" type="chooseType"/>
    <xs:element name="par" type="parType" />
    <xs:element name="mediaitem" type="mediaitemType" />
  </xs:choice>

  <xs:attribute name="priority" type="priorityType"/>
</xs:complexType>

<xs:complexType name="seqType">
  <xs:choice minOccurs="0" maxOccurs="unbounded">
    <xs:element name="choose" type="chooseType"/>
    <xs:element name="par" type="parType"/>
    <xs:element name="seq" type="seqType"/>
    <xs:element name="mediaitem" type="mediaitemType"/>
  </xs:choice>
  <xs:attribute name="priority" type="priorityType"/>
</xs:complexType>

<xs:complexType name="mediaitemType">
  <xs:complexContent>
    <xs:restriction base="xs:anyType">
      <xs:attribute name="idref" type="xs:IDREF" use="required" />
      <xs:attribute name="priority" type="priorityType"/>
      <xs:attribute name="starttime" type="starttimeType"/>
    </xs:restriction>
  </xs:complexContent>
</xs:complexType>
```

FIG 29 (fourth part)

```

<xs:simpleType name="startmodeType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="restart"/>
    <xs:enumeration value="resume"/>
    <xs:enumeration value="laststop"/>
    <xs:enumeration value="playtime"/>
    <xs:enumeration value="contplaytime"/>
  </xs:restriction>
</xs:simpleType>

<xs:simpleType name="starttimeType">
  <xs:pattern value="\d{1}+s"/>
</xs:simpleType>

<xs:simpleType name="onremoveType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="destroy"/>
    <xs:enumeration value="remove"/>
  </xs:restriction>
</xs:simpleType>

<xs:simpleType name="loopingType">
  <xs:restriction base="xs:boolean"/>
</xs:simpleType>

<xs:simpleType name="evaluationType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="start-up"/>
    <xs:enumeration value="con"/>
  </xs:restriction>
</xs:simpleType>

```

FIG 29 (fifth part)

```
<!-- and integer values concluded with the unit "s" -->
  </xs:restriction>
</xs:simpleType>

<xs:simpleType name="emptyType">
  <xs:restriction base="xs:boolean"/>
</xs:simpleType>

<xs:simpleType name="priorityType">
  <xs:restriction base="xs:integer">
    <xs:minInclusive value="1"/>
    <xs:maxInclusive value="99"/>
  </xs:restriction>
</xs:simpleType>
```

FIG 30

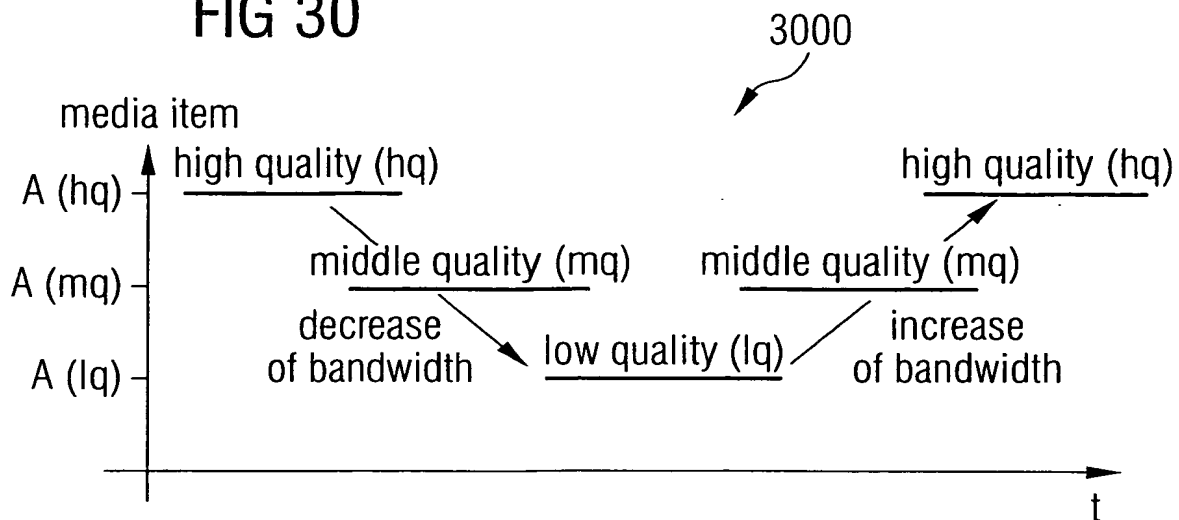


FIG 31

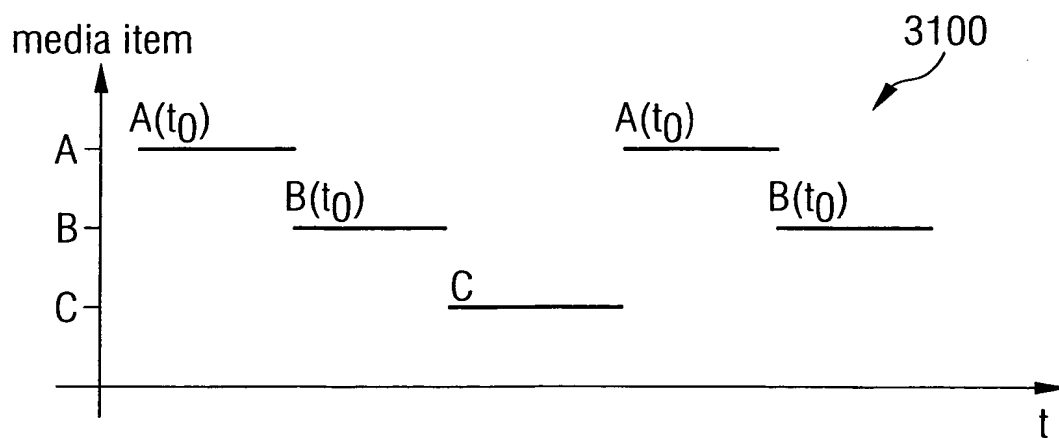


FIG 32A

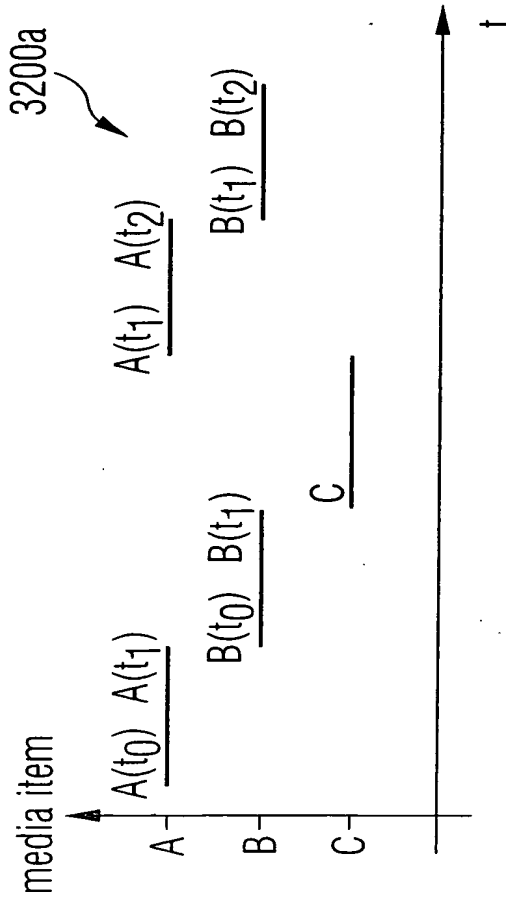


FIG 32B

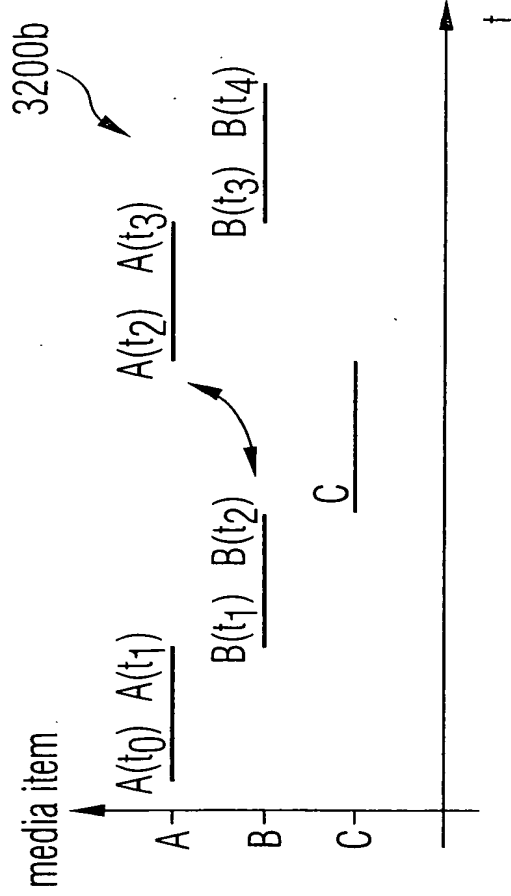


FIG 33

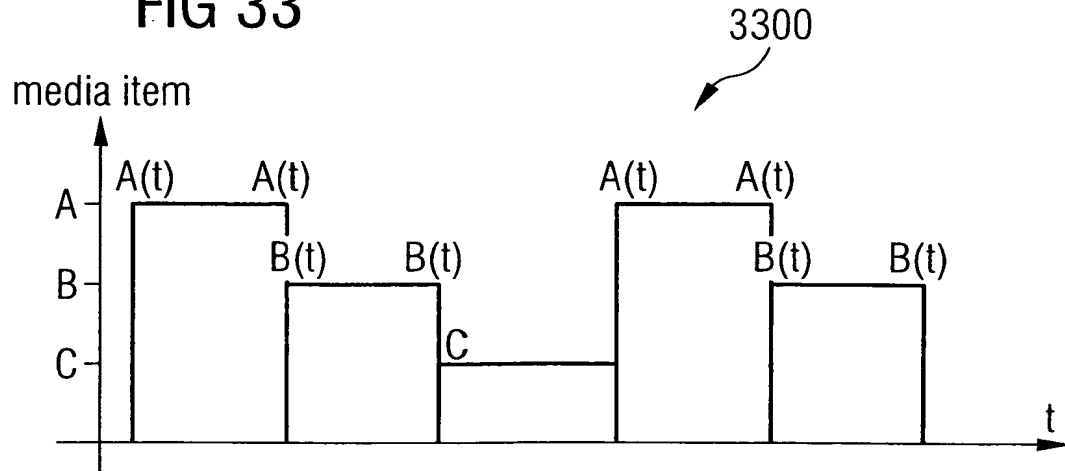


FIG 34

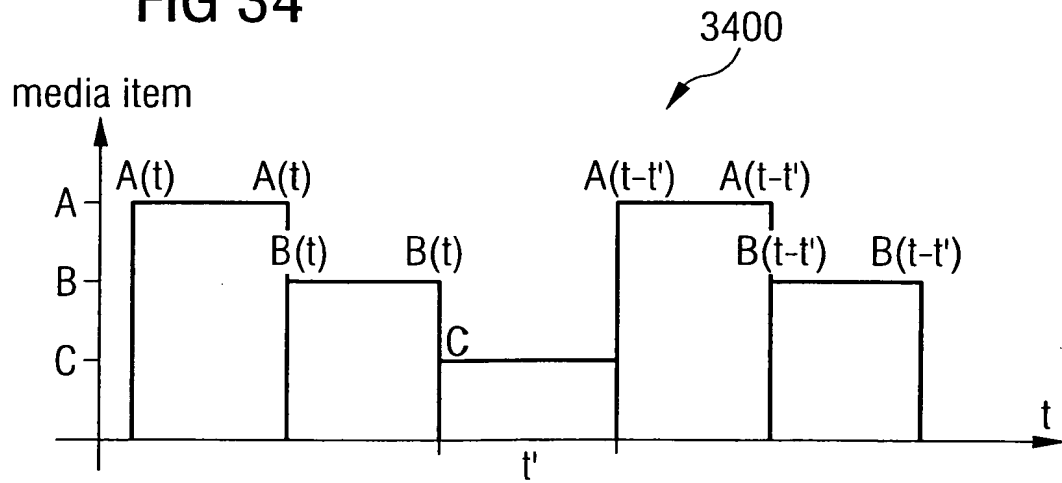


FIG 35

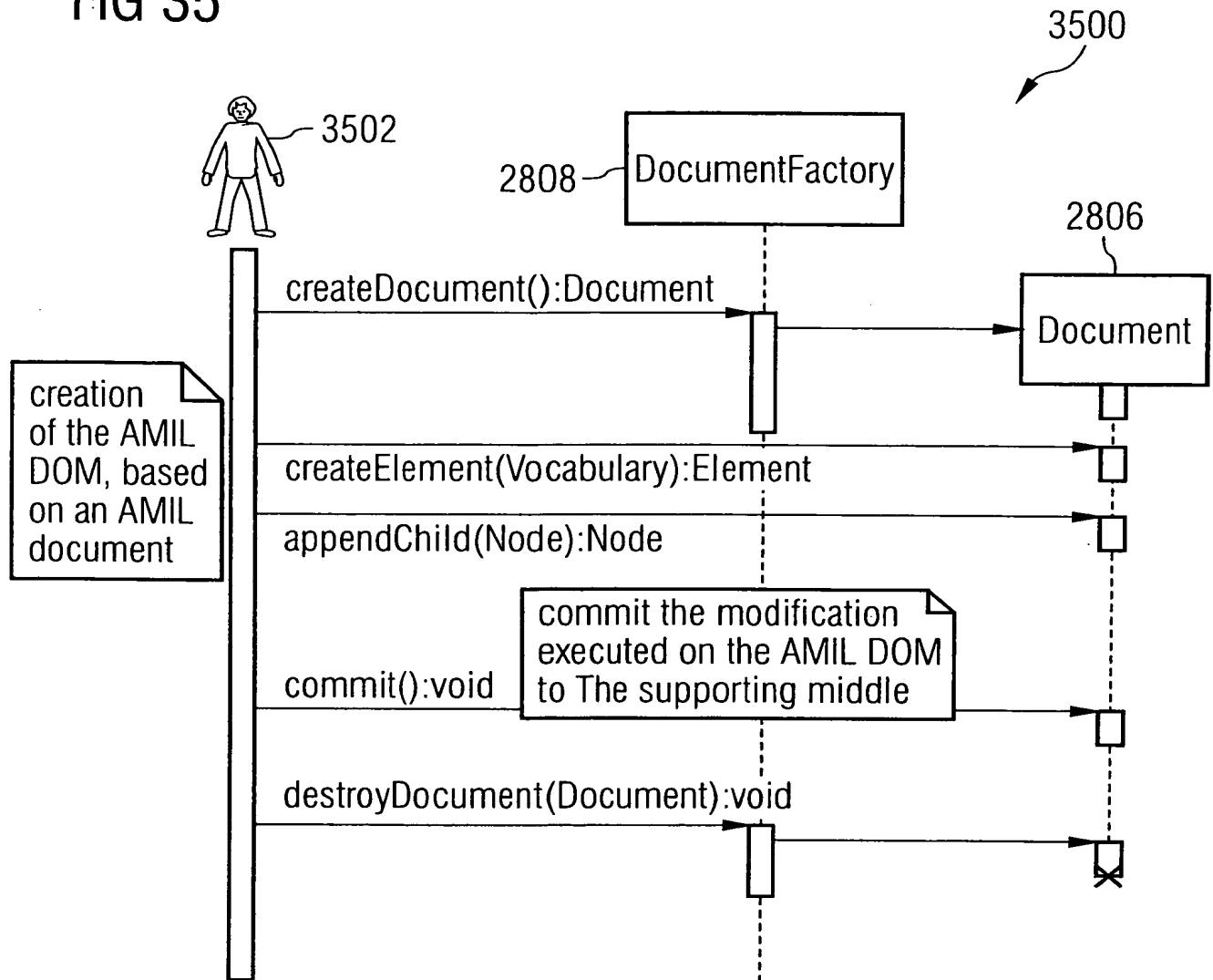


FIG 36

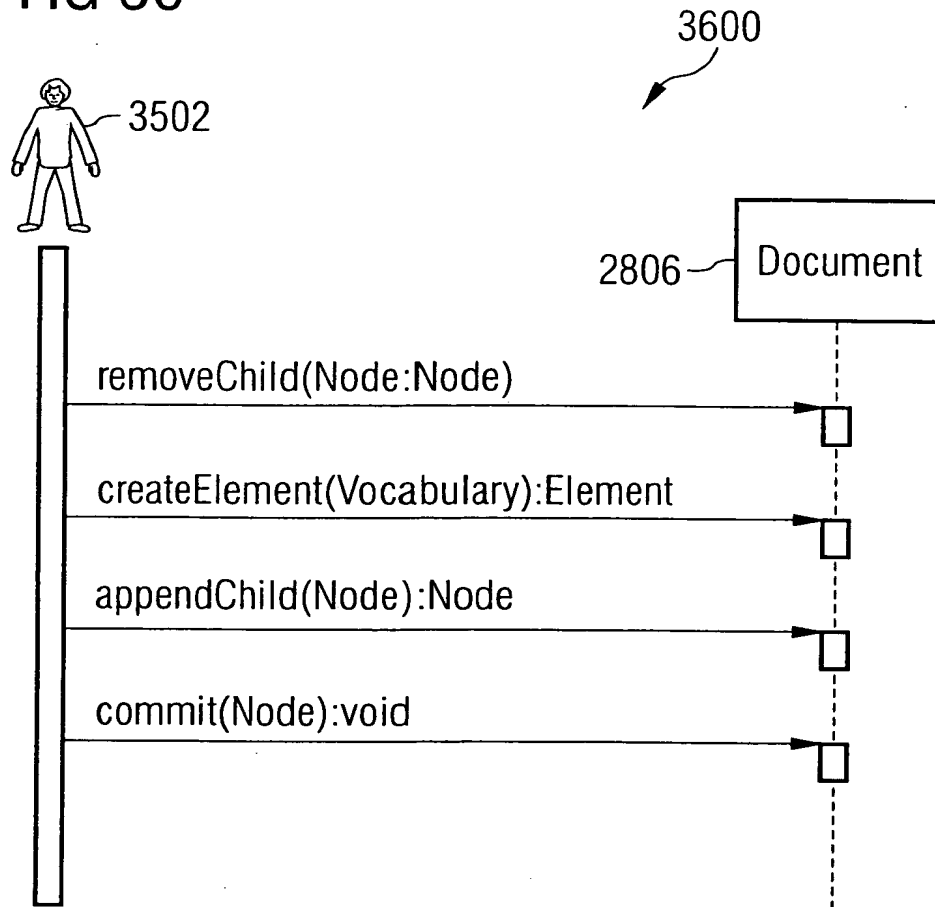


FIG 37

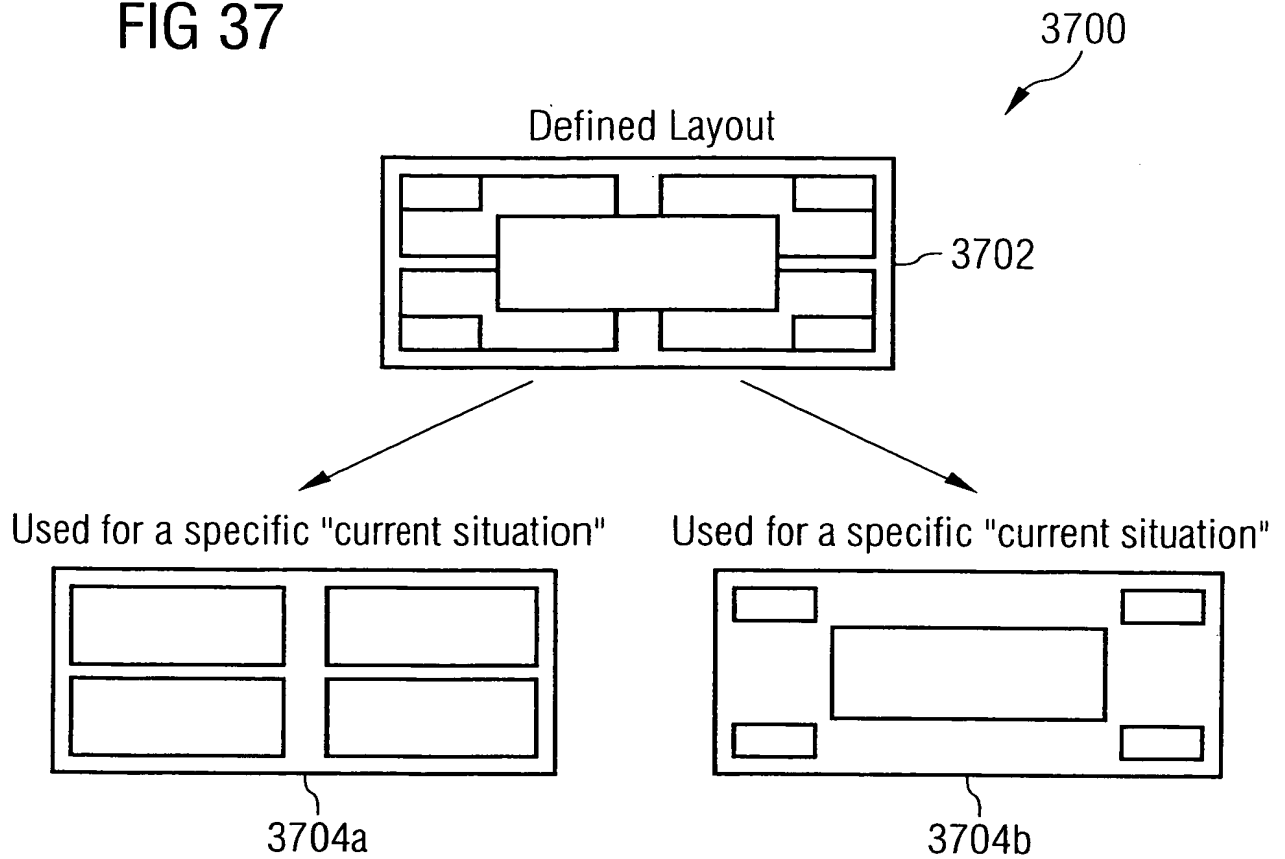


FIG 38

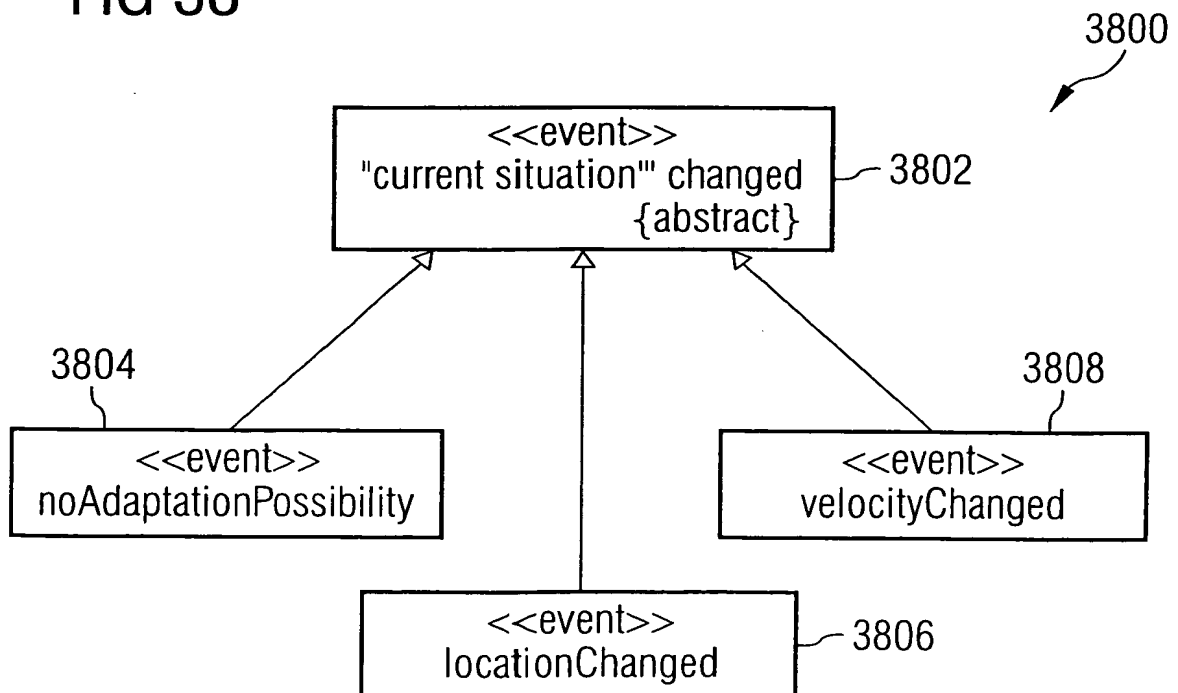
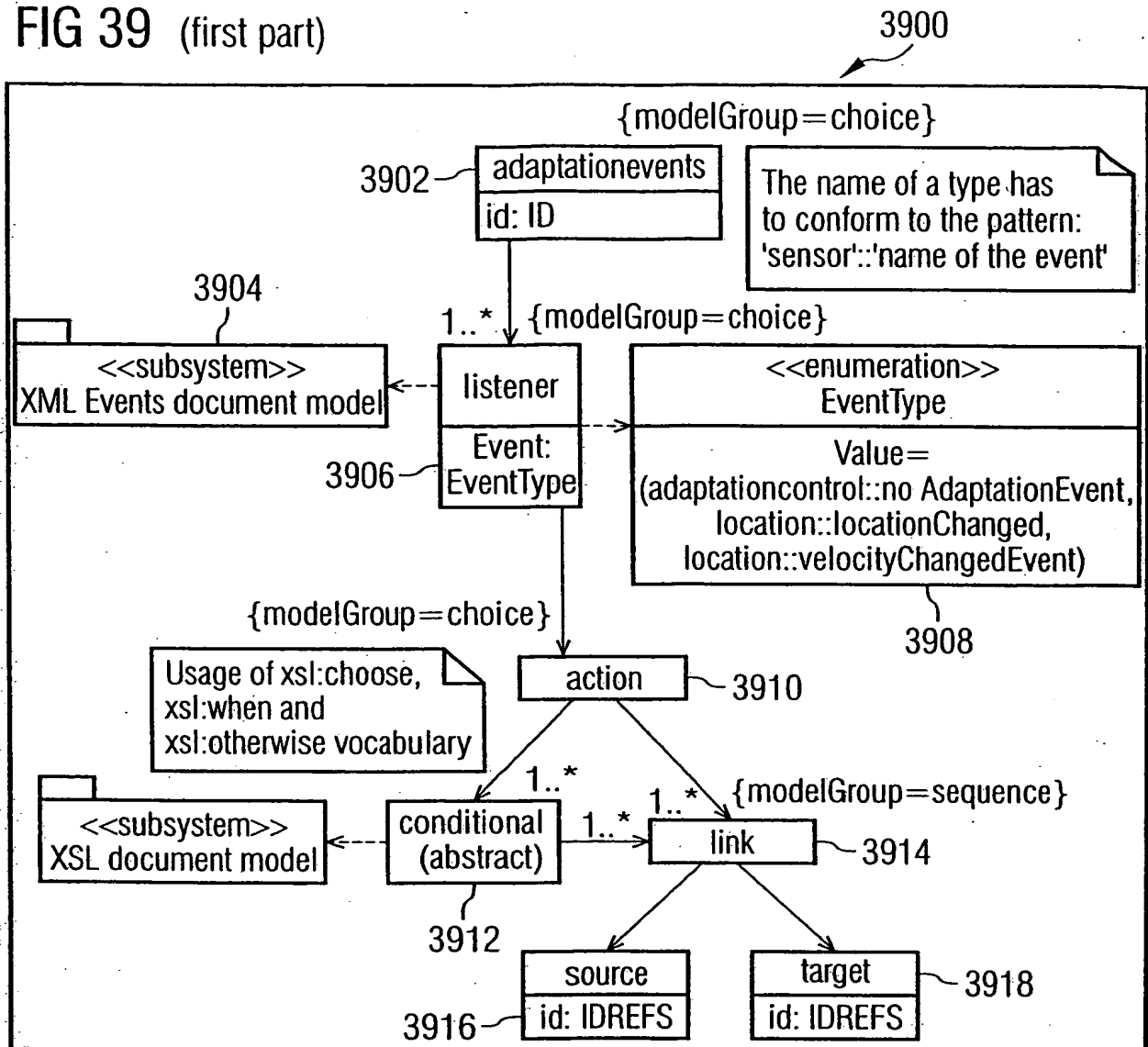


FIG 39 (first part)



```
<xs:element name="adaptationevent" type="adaptationEventType"/>
```

```
<xs:complexType name="adaptationEventType">
```

```
<xs:choice minOccurs="0">
```

```
<xs:element name="listener" type="listenerType" />
```

```
</xs:choice>
```

```
<xs:attribute name="id" type="xs:ID"/>
```

```
</xs:complexType>
```

```
<xs:complexType name="listenerType">
```

```
<xs:choice>
```

```
<xs:element name="action" type="actionType"/>
```

```
</xs:choice>
```

FIG 39 (second part)

```
<xs:complexType name="actionType">
  <xs:choice>
    <xs:element name="link" type="linkType"/>
  </xs:choice>
</xs:complexType>

<xs:complexType name="linkType">
  <xs:sequence>
    <xs:element name="source" type="sourceType"/>
    <xs:element name="target" type="targetType"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="sourceType">
  <xsd:complexContent>
    <xsd:restriction base="xsd:anyType">
      <xsd:attribute name="refs" type="xsd:string"/>
    </xsd:restriction>
  </xsd:complexContent>
</xs:complexType>

<xs:complexType name="targetType">
  <xsd:complexContent>
    <xsd:restriction base="xsd:anyType">
      <xsd:attribute name="refs" type="xsd:string"/>
    </xsd:restriction>
  </xsd:complexContent>
</xs:complexType>
```

FIG 39 (third part)

```
<xs:simpleType name="eventType">  
  <xs:restriction base="xs:string">  
    <xs:enumeration value="adaptation::noAdaptationPossibility"/>  
    <xs:enumeration value="application::newMediaitem"/>  
    <xs:enumeration value="location::velocityChangeEvent"/>  
    <xs:enumeration value="location::locationChangeEvent"/>  
  </xs:restriction>  
</xs:simpleType>
```

FIG 40
(first part)

```
<?xml version="1.0"?>

<amil:amil
  xmlns:rdf="http://www.w3.org/TR/WD-rdf-syntax#"
  xmlns:amil="http://www.sony.de/amil"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:smil="http://www.w3.org/2001/SMIL20/WD/Layout Module"
  xmlns:svg="http://www.w3c.org/svg"
  xmlns:xhtml="http://www.w3.org/1999/xhtml" >
  <amil:head module>
    <amil:title>Example</amil:title>
  </amil:head module>
  <amil:layout>
    <smil:root-layout width="640" height="480" backgroundcolor="white"/>
    <smil:region id="upperpart" left="0" top="0" width="640" height="240"/>
    <smil:region id="middlepart" left="0" top="240" width="640" height="200"/>
    <smil:region id="lowerpart" left="100" top="440" width="440" height="40"/>
  </amil:layout>
  <amil:mediaitems>
    <amil:mediaitem id="mediaA-hg" type="movie" region="upperpart"
src="rtsp://mediaserver/centa/KNightsTale-hq.mov"/>
    <amil:mediaitem id="mediaA-mq" type="movie" region="upperpart"
```


FIG 40
(second part)

```

src="rtsp://mediaserver/centa/KNightsTale-mq.mov"/>
  <amil:mediaitem id="mediaA-lq" type="movie" region="upperpart"

src="rtsp://mediaserver/centa/KNightsTale-lq.mov"/>
  <amil : mediaitem id="ad" type="text/xhtml" region="middlepart">
    <xhtml>
      ...plain text in XHTML...
    </xhtml>
  </amil:mediaitem>
</amil:mediaitems>

<interactions>
  <widget id="widgetA" type="class" region="lowerpart" class="de.comcar.browser.widget.SmartWidget"/>
</interactions>
</amil:head module>

<amil:body module>
<adaptation>
  <amil:mediaitem idref="ad"/>
  <amil:widget idref="widgetA"/>
  <choose>
    <amil:mediaitem idref="mediaA-hq"/>
    <amil:mediaitem idref="mediaA-mq"/>
    <amil:mediaitem idref="mediaA-lq"/>
  </choose>
</adaptation>
</amil:body module>
</amil:amil>

```